

DETAILED ACTION

1. This office action is responsive to communication filed on October 24, 2008.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with W. William Park (Reg. 55,523) on November 26, 2008.

3. The claims are amended as follows:

Claim 12. (cancelled)

Allowable Subject Matter

4. Claims 2, 5, 7, 8 and 16 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Consider claim 2, the closest prior art, Kim et al. teaches:

A compact camera module (figure 2) comprising a lens unit (8) including a lens (7) and a lens holder (8) holding the lens therein and an image pickup unit ("image sensor module", paragraph 0024) attached to the lens unit (see figure 2), wherein the image pickup unit comprises:

a circuit board(1 and 3);
an image pickup device(2) on the circuit board(1 and 3);
a cover member(5) arranged on the circuit board(1 and 3) to cover the image pickup device(2); and

an optical filter(4) arranged with respect to the cover member(5) to face the image pickup device(2, see figure 2), wherein

the image pickup device(2) is disposed in a substantially closed space formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4, see figure 2).

However, Kim et al. do not explicitly teach that the cover member contains an air hole, or that the lens unit includes a ventilation channel.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole making the substantially closed space in communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

However, the combination of Kim et al. and Burnham does not explicitly teach that the lens unit includes a ventilation channel.

Shinohara et al. is similar to Kim et al. in that Shinohara et al. teach of a lens unit (figure 10) containing at least one lens (L1) and a lens holder (9, 9e).

However, in addition to the combination of Kim et al. and Burnham, Shinohara et al. teach that the lens unit includes a ventilation channel (See the arrows of figure 10, column 7, lines 1-56). Shinohara et al. also teach that the ventilation channel (see the arrows on figure 10) is formed between a wall of a cutout of the lens (L1) and the lens holder (The ventilation channel denoted by the arrows on figure 10 is between a cutout of the lens (6, the cutout holds the plurality of lenses, i.e. it is a cutout of the lens) and the lens holder (9, 9e). See figure 10.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a ventilation channel as taught by Shinohara et al. in the lens unit taught by the combination of Kim et al. and Burnham for the benefit of properly ventilating air in and out of the lens unit during the screwing of the lens unit into the image pickup unit so that the pressure in the lens unit is maintained substantially equal with the external pressure, enabling the lens unit to be smoothly moved (Shinohara et al., column 1, lines 19-24).

Note: When an alternate configuration of the air hole and cover member, as shown in figure 4 of Burnham is used, the air hole is provided between cover member (12'') and lens holder (36). Because an air hole containing filters 90 and 92 is provided on the inside, as well as the outside of the lens holder (36), an air hole taught

by Burnham will be in communication with the ventilation channel taught by Shinohara et al. when the fourth embodiment taught by Burnham is used. See Burnham, column 4, line 55 through column 5, line 11.

However, the prior art of record does not teach nor reasonably suggest that the ventilation channel allows air to escape, or that the cutout is a cutout in the lens, as required by claim 2.

Claims 5, 7 and 8 are allowed and being dependent from an allowed claim 2.

Consider claim 16, the closest prior art, Kim et al. teaches:

A method of producing a compact camera module (figure 2, paragraphs 0024-0028), comprising the steps of:

forming an image pickup unit ("image sensor module", paragraph 0024) wherein an image pickup device (2) is disposed in a substantially closed space (See figure 2. A substantially closed space is formed by the circuit board (1 and 3), the cover member (5), and the optical filter (4).), wherein the step of forming the image pickup unit comprises the steps of:

installing an image pickup device (2) on a circuit board (1 and 3, paragraphs 0024 and 0025);

covering the image pickup device (2) with a cover member (5) to form the substantially closed substantially closed space (see figure 2, paragraph 0024); and

arranging an optical filter(4) with respect to the cover member(5) to face the image pickup device(2, see figure 2, paragraph 0024);

wherein the cover member(5), optical filter(4), and circuit board(1 and 3) form a substantially closed space(see figure 2, Response to Arguments), and

attaching the image pickup unit to a lens unit(8, paragraph 0024).

However, Kim et al. do not explicitly teach that the cover member contains an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole making the substantially closed space in communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

However, the prior art of record does not teach nor reasonably suggest that the ventilation channel allows air to escape, or that the cutout is a cutout in the lens, as required by claim 16.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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